IN THE CLAIMS:

1. (Original) A method for routing a transmission line through a wall of a tool joint having a primary and secondary shoulder, a central bore, and a longitudinal axis, the method comprising:

forming a first channel at a nominal angle, that is positive with respect to the longitudinal axis, through the wall of the tool joint from the secondary shoulder to a point proximate an inside wall of the central bore; and

forming a second channel, from the inside wall within the central bore, the second channel effective to merge with the first channel, thereby forming a continuous channel from the secondary shoulder to the central bore.

2. (Original) The method of claim 1, wherein the first channel is formed by gun-drilling.

3. (Original) The method of claim 1, further comprising tilting the tool joint before forming the first channel to produce the angle.

4. (Original) The method of claim 3, further comprising adjusting the tilt before forming the first channel to provide a desired positive angle.

5. (Original) The method of claim 1, wherein the nominal angle is greater than or equal to about .25 degrees.

6. (Original) The method of claim 1, wherein the first channel does not break into the central bore.

7. (Original) The method of claim 1, wherein the first channel breaks into the central bore at a non-perpendicular angle.

8. (Original) The method of claim 7, wherein a backing member is inserted into the central bore to facilitate a break through of the first channel into the central bore.

9. (Original) The method of claim 1, wherein the second channel is formed with a milling tool inserted into the central bore.

10. (Original) The method of claim 1, wherein the nominal angle is between about .25 degrees and about 15 degrees.

11. (Amended) An apparatus comprising:

a tool joint for use with a downhole tool, the tool joint comprising a primary and a more internal secondary shoulder, a central bore, and a longitudinal axis;

a gun-drilled channel formed in the tool joint from the secondary shoulder to a point proximate the central bore; and

an open channel milled from the central bore to the gun-drilled channel, such that the gun-drilled channel and the open channel merge to form a continuous channel;

wherein the gun-drilled channel is drilled at a nominal positive angle with respect to the longitudinal axis.

12. (Cancelled)

13. (Amened) The apparatus of claim 11~~12~~, wherein the nominal positive angle is greater than about .25 degrees and less than or equal to about 15 degrees.

14. (Original) The apparatus of claim 11, wherein the gun-drilled channel does not break into the central bore.

15. (Original) The apparatus of claim 11, wherein the gun-drilled channel breaks into the central bore at a non-perpendicular angle.

16. (Original) The apparatus of claim 11, wherein the gun-drilled channel breaks into the central bore substantially perpendicularly.

17. (Original) The apparatus of claim 11, wherein the open channel is milled with a milling tool inserted into the central bore.

18. (Amended) A method for routing a transmission line through a tool joint of a downhole tool, wherein the tool joint includes a primary and a more internal secondary shoulders, a tool wall, a central bore, and a longitudinal axis, the method comprising:

increasing the inside diameter of a portion of the central bore to provide a first portion having a standard diameter, and a second portion having an enlarged diameter; and

drilling a channel at a nominal positive angle with respect to the longitudinal axis through the tool wall from the secondary shoulder to an exit point within the second portion.

19. (Original) The method of claim 18, wherein drilling further comprises gun-drilling.

20. (Original) The method of claim 19, wherein gun-drilling does not break into the central bore.

21. (Original) The method of claim 20, wherein drilling further comprises milling back from the central bore to the gun-drilled channel.

22. (Original) The method of claim 21, wherein milling back opens up the channel to the central bore.

23. (Original) The method of claim 18, wherein the channel breaks into the central bore at a non-perpendicular angle.

24. (Original) The method of claim 23, wherein a backing member is inserted into the central bore to facilitate drilling into the central bore at a non-perpendicular angle.

25. (Original) The method of claim 18, wherein the channel breaks into the central bore at a substantially perpendicular angle.

26. (Original) A method for routing a transmission line through a downhole tool having primary and secondary shoulders, a central bore, and a longitudinal axis, the method comprising:

drilling a straight channel through the downhole tool at a positive nominal angle with respect to the longitudinal axis from the secondary shoulder to a point proximate the inside wall of the central bore; and

milling back, from within the central bore, a second channel effective to merge with the straight channel, to form a continuous channel from the secondary shoulder to the central bore.

27. (Original) The method of claim 26, wherein the straight channel is formed by gun-drilling.

28. (Original) The method of claim 26, further comprising tilting the tool joint before forming the straight channel to produce the angle.

29. (Original) The method of claim 28, further comprising adjusting the tilt before forming the straight channel to provide a desired positive angle.

30. (Original) The method of claim 26, wherein the nominal angle is greater than or equal to about .25 degrees.

31. (Original) The method of claim 26, wherein the straight channel does not break into the central bore.

32. (Original) The method of claim 26, wherein the straight channel breaks into the central bore at a non-perpendicular angle.

33. (Original) The method of claim 32, wherein a backing member is inserted into the central bore to facilitate drilling the straight channel as it breaks out into the central bore.

34. (Original) The method of claim 26, wherein the second channel is formed with a milling tool inserted into the central bore.

35. (Original) The method of claim 26, wherein the nominal angle is between about .25 degrees and about 15 degrees.